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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,775	10/24/2000	Charles D. Ray	Q00-1042-US1	2360

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EXAMINER

DAVIDSON, DAN

ART UNIT PAPER NUMBER

2651

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/695,775

Applicant(s)

RAY ET AL.

Examiner

Dan I Davidson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 30-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-12, 30-32 and 34-41 is/are rejected.
- 7) ☒ Claim(s) 2, 4, 7, 31 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. The amendment filed December 1, 2003 has been received and has been made of record. An Office Action in response to the above amendment follows.

Claim Objections

2. Claims 2 and 31 are objected to since they fail to limit the invention claimed in claims 1 and 30, respectively.

3. Claim 7 is objected to because of the following informality:

(1) In claim 7, line 9, "the data disk" has a lack of antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5-12, 30-32, 34-36, and 40-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Chew et al (US 6,567,233 B1).

Re claims 1-2, 6, 9, 10-12, 31, 35, and 40-41; Chew et al disclose a data transfer driver for a disk drive (Fig. 4; col. 4, line 41) including one or more magnetic data disks having one or more recording surfaces (col. 4, lines 41-43), a plurality of data transducer heads positionable relative to the recording surfaces (Fig. 4, 415-414, 425-

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424) by a head position actuator structure (Fig. 7, Plant) operating within a head position servo loop (Fig. 7; Fig. 4, 457), the data transfer driver comprising: a preamplifier (Fig. 4, 401) comprising a plurality of head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations (Fig. 4, 411-412, 421-422); a mode controller electrically connected to each head interface (Fig. 4, 432, 431, 454-456; col. 7, lines 50-54), for controlling the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head while simultaneously writing data to at least one recording surface via at least one transducer head (col. 7, lines 50-60). Claims 10 and 11 are satisfied based upon the disclosure at col. 7, lines 55-57.

Re claims 3, 8, 32, and 36; Chew et al disclose that the mode controller controls the operation of the head interfaces based on configuration information, wherein the configuration information includes data transfer mode and transducer head selection information (col. 7, lines 29-31; Host).

Re claims 5 and 34; Chew et al disclose a control interface for receiving configuration information connected to the mode controller (Fig. 4, 452).

Re claim 7; Chew et al disclose that the mode controller controls the plurality of head interfaces for selectively (i) writing data to one or more recording surfaces (col. 7, lines 11-14), (ii) reading data from at least one recording surface (col. 5, lines 54-56), and/or (iii) reading data from at least one recording surface while writing data to one or more recording surfaces (col. 7, lines 49-51; note the use of the word "may").

Re claim 30; Chew et al disclose a drive controller configured for controlling the head position actuator structure to position the heads relative to the recording surfaces (Fig. 4, 457; Fig. 7), and for providing the configuration information to the preamplifier for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head (Fig. 4, 454-456, 431-432). The phrase "the servo controller" has not been considered since it is not defined nor is it referenced earlier in the claim.

6. Claims 30-32 and 35-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Belser et al (US 6,411,459 B1).

Re claims 30-32 and 35-36; Belser et al disclose a disk drive (Fig. 1, 100) comprising: recording media having one or more recording surfaces (Fig. 1, 124, 126), one or more data transducer heads (Fig. 1, 110), a head position actuator structure for positioning the heads relative to the recording surfaces (Fig. 1, 116), operating within a head position servo loop (col. 3, lines 31-35); a preamplifier comprising: one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations (inherent that there be read and write driver circuits; a current needs to be supplied to the write head to record, and a bias current or voltage needs to be supplied to the read head to reproduce); a mode controller electrically connected to each head interface and responsive to the servo controller, for controlling the operation of each head interface based on configuration information for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one

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recording surface via at least one transducer head (col. 5, lines 48-62; this section discloses two instances of selectively reading data from at least one recording surface via at least one transducer head (first instance: reference pattern; second instance: servo pattern from selected disk surface) while writing data to at least one recording surface via at least one transducer head (first instance: writing servo pattern on selected disk surface; second instance: writing servo patterns on other disk surfaces); it is inherent that there be a controller that determines which surfaces are being read and which are written); and a drive controller configured for controlling the head position actuator structure to position the heads relative to the recording surfaces (col. 3, lines 31-35), and for providing the configuration information to the preamplifier for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head (it is inherent that there be a controller to provide the configuration information).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belser et al (US 6,411,459 B1) as applied to claim 30 above, and further in view of Baker et al (US 6,304,407 B1).

Belser et al disclose the limitations at claim 30 as discussed above.

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Re claim 37; Belser et al disclose that the recording media includes one or more data disks having recording surfaces (see Fig. 1), the disk drive further including a reference disk having a reference pattern thereon (col. 2, lines 50-52). Belser et al further disclose the drive controller is further configured for controlling the actuator and the preamplifier in a servo control loop, for reading the reference pattern from the reference disk via a transducer head and using the read reference pattern to position and maintain one or more transducer heads on one or more of the data disk recording surfaces while writing final servo patterns onto the one or more data disk recording surfaces (see discussion above).

Belser et al do not disclose the specific reference pattern presented in the remainder of the claim. Baker et al teach that the transferred reference pattern comprises servo clock information providing transducer head circumferential relative position information, and servo position information providing transducer head radial relative position information (col. 4, lines 35-41).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to use the specific reference pattern of Baker et al in the invention of Belser et al; motivation being the ability to record higher resolution servo patterns.

Re claims 38-39; these claims are satisfied by Belser et al based on that discussed above.

Allowable Subject Matter

9. Claims 4 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claims 4 and 33; the prior art of record, and in particular Chew et al (US 6,567,233 B1), fails to teach or suggest the combination of a servowrite mode and a read-while-write mode as defined in the respective claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nguyen et al (US 6,266,202 B1) teach real-time verification of data written to a disk through generating a magnetic coupling effect between the read and write elements of the head.

Sidman (US 5,153,787 A) teaches a dedicated servo surface.

Haynes (US 4,314,289 A) and Keidl (US 4,313,140 A) teach reading servo information on a disk from a buried servo layer while simultaneously writing data to the recording layer of the disk.

Lin (US 3,846,829 A) teaches a servo track transcribing system.

Akagi et al (EP 0784317 A2) teach reading recorded data simultaneously with a recording or erasing operation in an optical disk drive.

Sasaki et al (EP 0762756 A2) teach simultaneously and continuously writing a video signal onto a hard disk while reading an arbitrary video signal from the hard disk.

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Dias et al (EP 0642081 A2) teach mirrored storage disks operating out of phase from each other, one being in read mode and one being in write mode.


IBM Technical Disclosure Bulletin (NN9305459) teaches verifying servo data while simultaneously recording newer servo data.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I Davidson whose telephone number is (703) 308-8535. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R Hudspeth, can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Dan I Davidson
February 6, 2004



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